REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Claims 25-29, 31-34 and 36-47 stand rejected.

In this response, claims 25, 26, 28, 29, 32, and 36 have been amended. No claims have been canceled. No claims have been added. Support for the amendments is found in the specification, the drawings, and in the claims as originally filed. Applicants submit that the amendments do not add new matter.

Applicants reserve all rights with respect to the applicability of the Doctrine of Equivalents.

Claims 26, 28, 36, and 43-47 have been rejected under 35 U.S.C. §112, second paragraph.

Applicants have amended claims 26, 28, 36, and 43-47 in light of the Examiner's rejection.

Therefore, applicants respectfully submit that the Examiner's rejections of claims 26, 28, 36, and 43-47 under 35 U.S.C. §112, second paragraph, have now been overcome.

Given that claims 28, 36, and 43-47 depend from amended claim 26, and add additional limitations, applicants respectfully submit that the Examiner's rejection of claims 28, 36, and 43-47 under 35 U.S.C. §112, second paragraph, has been overcome.

Claims 25, 29, 31, 33-34, and 41-42 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2001/0033592 to Yamauchi et al. ("Yamauchi") and further in view of U.S. Patent No. 6,888,169 to Malone et al. ("Malone").

Amended claim 1 reads, in part, as follows: "a thermo-electric cooler disposed on the lower portion, wherein the thermo-electric cooler has a top portion and a bottom portion, wherein

the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module." (emphasis added).

The Examiner acknowledged that Yamauchi "does not disclose wherein the bottom portion has a plurality of cavities for electrical traces to contribute to compactness of a footprint of the module." (Office Action, p. 3)

Accordingly, Yamauchi fails to disclose a thermo-electric cooler disposed on the lower portion, wherein the thermo-electric cooler has a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Malone, in contrast, discloses high speed optical subassembly with ceramic carrier. Malone discloses a laser 2 placed on the ceramic carrier 10 (Figure 27). In contrast, amended claim 25 refers to a thermo-electric cooler disposed a substrate.

Accordingly, Malone fails to disclose a thermo-electric cooler disposed on a lower portion of the substrate, wherein the thermo-electric cooler has a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

It is respectfully submitted that Malone does not teach or suggest a combination with Yamauchi, and Yamauchi does not teach or suggest a combination with Malone. It is respectfully submitted that Malone teaches away from Yamauchi. Yamauchi discloses an optical semiconductor module having a capability of temperature regulation. Malone, in contrast, discloses a multilayer ceramic carrier for an optical element. It would be impermissible hindsight, based on applicants' own disclosure, to combine Malone and Yamauchi.

Furthermore, even if Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Therefore, applicants respectfully submit that claim 25, as amended, is not obvious under 35 U.S.C. §103(a) over Yamauchi and further in view of Malone.

Given that claims 29, 31, 33-34, and 41-42 depend from amended claim 25, and add additional limitations, applicants respectfully submit that claims 29, 31, 33-34, and 41-42 are not obvious under 35 U.S.C. §103(a) over Yamauchi and further in view of Malone.

Claim 31 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamauchi and Malone, as applied to claim 25 above, and further in view of U.S. Patent No. 6,729,143 to Watts et al. ("Watts").

As set forth above, even if Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom

portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Watts, in contrast, discloses placing a thermally conductive sheet over the top surface of the thermo-electric cooler. Watts fails to disclose a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

It is respectfully submitted that none of the references cited by the Examiner teach or suggest a combination with each other. It would be impermissible hindsight, based on applicants' own disclosure, to combine Watts, Malone and Yamauchi.

Furthermore, even if Watts, Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Given that claim 31 depends from amended claim 25, and adds additional limitations, applicants respectfully submit that claim 31, as amended, is not obvious under 35 U.S.C. §103(a) over Yamauchi and Malone and further in view of Watts.

Claims 37-39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamauchi and Malone, as applied to claim 25 above, and further in view of U.S. Patent No. 6,778,576 to Acklin et al. ("Acklin").

As set forth above, even if Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Acklin, in contrast, discloses encapsulated illumination unit for a diaphanoscopic examination at a human, animal, or botanical examination subject. Acklin fails to disclose a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

It is respectfully submitted that none of the references cited by the Examiner teach or suggest a combination with each other. It would be impermissible hindsight, based on applicants' own disclosure, to combine Acklin, Malone and Yamauchi.

Furthermore, even if Acklin, Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route

electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Given that claims 37-39 depend from amended claim 25, and add additional limitations, applicants respectfully submit that claims 37-39 are not obvious under 35 U.S.C. §103(a) over Yamauchi and Malone and further in view of Acklin.

Claim 40 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamauchi and Malone, as applied to claim 25 above, and further in view of U.S. Patent No. 6,703,561 to Rosenberg et al. ("Rosenberg").

As set forth above, even if Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Rosenberg, in contrast, discloses a header assembly having integrated cooling device. Rosenberg fails to disclose a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

It is respectfully submitted that none of the references cited by the Examiner teach or suggest a combination with each other. It would be impermissible hindsight, based on applicants' own disclosure, to combine Rosenberg, Malone and Yamauchi.

Furthermore, even if Rosenberg, Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Given that claim 40 depends from amended claim 25, and add additional limitations, applicants respectfully submit that claim 40 is not obvious under 35 U.S.C. §103(a) over Yamauchi and Malone and further in view of Rosenberg.

Claim 32 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Yamauchi and Malone, as applied to claim 25 above, and further in view of U.S. Publication No. 2003/0043868 to Stewart et al. ("Stewart").

As set forth above, even if Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Stewart, in contrast, discloses a temperature control device having a top portion 112 with an L-shaped cross-section (Figure 1). Stewart fails to disclose a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined,

wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

It is respectfully submitted that none of the references cited by the Examiner teach or suggest a combination with each other. It would be impermissible hindsight, based on applicants' own disclosure, to combine Stewart, Malone and Yamauchi.

Furthermore, even if Stewart, Malone and Yamauchi were combined, such a combination would still lack a thermo-electric cooler having a top portion and a bottom portion, wherein the bottom portion of the thermo-electric cooler is T-shaped, and wherein the T-shaped bottom portion allows a plurality of cavities to be defined, wherein the cavities configured to route electrical traces to the thermo-electric cooler contribute to compactness of a footprint of the module, as recited in amended claim 25.

Given that claim 32 depends from amended claim 25, and adds additional limitations, applicants respectfully submit that claim 32 is not obvious under 35 U.S.C. §103(a) over Yamauchi and Malone and further in view of Stewart.

It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. If the Examiner believes a telephone conference would expedite the prosecution of the present application, the Examiner is invited to call the undersigned at (408) 720-8300.

If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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/Tatiana Rossin/
Tatiana Rossin
Reg. No. 56,833

1279 Oakmead Parkway
Sunnyvale, California 94085-4040
(408) 720-8300

Customer No. 045209